

**Remarks:**

Claims 2, 8, 24-32, and 34-39 are currently pending in the application. Claims 2, 8, 24, 27, 29-31, 38, and 39 have been amended, and new claim 40 has been added. Applicants believe the amendments made herein add no new matter. Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based on prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to be attached thereto. Reconsideration and reexamination of the application is respectfully requested in view of the amendments and the following remarks.

**Rejection Under 35 U.S. C. § 112**

Claims 2, 8, 24-32, and 34-39 stand rejected under 35 U.S.C. § 112, first paragraph. The rejection is respectfully traversed.

It is stated in the Office Action that the specification is enabling for a rinsing liquid but does not reasonably provide enablement for any liquid. Accordingly, the claims that refer to a “liquid” have been amended to refer to a “rinsing liquid.” Applicants note, however, that the specification refers to the liquid employed during both the rinse step and the cleaning step as the “rinsing liquid.” For example, see paragraphs [0016], [0017], and [0030] of the specification for usage of “rinsing liquid” with respect to the cleaning step (emphasis added):

[0016] The *part rinse step Cleaning*, which follows the pre-rinse operation, is characterized in that the soiling of the water is also continuously controlled in the *part rinse step Cleaning* and the soiling of the water is divided into easy, average or intense soiling steps, in that in the *part rinsing step Cleaning* the dosing of the cleanser and the heating-up of the *rinsing liquid* to a minimum temperature is effected, in that rinsing continues until no further increase in the turbidity of the *rinsing liquid* is ascertained, in that, thereafter, another soiling analysis is carried out, and in that, depending on the intensity of the *part rinsing step Cleaning*, and as a function of the second soiling analysis, a rinse time and an end temperature for the *part rinsing step Cleaning* is established via the fuzzy set. If, however, no soiling is detected in the *part rinsing step Cleaning*, the transition is made to the cleaning operation without the dosing of any cleanser.

[0017] At the same time it can be provided, in addition, that the rinse time and the end temperature for the *rinsing liquid* in the *part rinsing step Cleaning* is limited in the program memory of the control unit to certain maximum values in order to restrict the power and water consumption to maximum output.

[0030] If the soiling is easy to clean, the *cleaning operation* can then follow the pre-rinse operation, the cleansing agent being dosed and the *rinsing liquid* heated up.

Thus, per the specification, the term “rinsing liquid” does not distinguish between the liquid used during the rinse step and the cleaning step and applies to the liquid used during both the rinse step and the cleaning step. As such, the term rinsing liquid is generic, and the specification is enabling to liquids. Since the term rinsing liquid has been used in this manner throughout the application, the claims have been amendment to refer to a rinsing liquid. The amendments ameliorate the enablement issues raised by the Examiner, and Applicants request the withdrawal of the rejection.

#### **Rejection Under 35 U.S. C. § 103(a)**

Claims 2, 8, 24-32, and 34-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,888,269 to Bashark (“Bashark”) in combination with U.S. Patent No. 5,586,567 to Smith et al. (“Smith”). The rejection is respectfully traversed.

Bashark discloses a dishwasher (10) comprising racks (15) to carry dishes and a conventional spray arm (22) for spraying the dishes carried in the racks (15) with liquid. The dishwasher (10) further includes a sensing element (26) adapted to determine the turbidity of the liquid. A control (36) controls the operation of the dishwasher (10) based on, at least in part, the output of the sensing element (26). As shown in the flow chart of Fig. 7, the turbidity sensing results in a “yes” or “no” decision regarding whether the water is turbid, and the decision outcome determines which steps in a predetermined operation are executed.

Smith discloses a dishwasher (10) comprising upper and lower racks (14, 15) to support items to be washed and upper and lower spray mechanisms (19, 20) to impinge liquid on the articles in the racks (14, 15). The dishwasher (10) further includes a sump (13) at the lower end of a wash chamber and a pump (17) mounted below the sump (13) with an inlet connected to the

sump (13) to receive water from the sump (13). The upper spray mechanism (19) is coupled to an outlet of the pump (17) through a fluid conduit (18), while another outlet of the pump (17) is coupled to the lower spray mechanism (20) through a fluid conduit (21). A turbidity sensing mechanism (25) is included in the conduit (18) to measure turbidity, which is a measure of the suspended and/or soluble soils in the fluid. The sensing mechanism (25) is positioned below the sump (13), generally aligned with the pump (17). Thus, when fluid is in the sump (13), fluid also is in the sensing mechanism (25). During operation, "fluid is withdrawn from the sump (13) by pump (17) and supplied to the spray mechanisms (19, 20)." (col. 3, lines 17-18) The sensing mechanism (25) is operated when the fluid is quiescent so that bubbles in the fluid generated by the operation of the dishwasher (10) have dissipated. The fluid will be still during a pause following a fill step or a circulation step.

To establish a *prima facie* case of obviousness, basic criteria must be met. These criteria include: (1) there must be some suggestion or motivation to modify the reference or to combine reference teachings and (2) the prior art reference (or reference when combined) must teach or suggest all the claim limitations. As will be discussed below, these two criteria have not been met in the case of the alleged combination of Bashark with Smith, and the rejection must fail.

**(1) No suggestion or motivation to combine**

The combination of Bashark and Smith fails as there is no suggestion or motivation to make the combination. The standards for a finding of obviousness must be strictly adhered to. Simply citing two prior art references and then concluding that it would be obvious to combine the references to create the applicant's invention is wholly inadequate.

A claimed invention is unpatentable if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art....The ultimate determination of whether an invention would have been

obvious under 35 U.S.C. §103(a) is a legal conclusion based on underlying findings of fact.<sup>1</sup>

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field....Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

Most if not all inventions arise from a combination of old elements....Thus, every element of a claimed invention may often be found in the prior art....However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention....Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant....Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference.

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of the problem to be solved....In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references....The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art....Whether the Patent Office Examiner relies on an express or an implicit showing, the Examiner must provide particular findings related thereto....Broad conclusory statements standing alone are not "evidence."

*In Re Werner Kotzab*, 217 F.3d 1365; 55 U.S.P.Q.2d (BNA) 1313 (Fed. Cir. 2000)(citations omitted).

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<sup>1</sup> The underlying factual inquiries include (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; and (3) the differences between the claimed invention and the prior art. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966).

The Office Action has fails to identify any motivation, suggestion, or teaching of the desirability of combining Bashark with Smith to arrive at Applicants' invention. There has been no statement identified in the prior art as to the desirability of the asserted combination, there has been no discussion of the knowledge of one of ordinary skill in the art or the nature of the problem to be solved, there has been no identification of what the combined teachings, the knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to one of ordinary skill in the art as required for a showing of motivation. The Office Action further fails to provide any particular findings related to any motivation, suggestion, or teaching of the desirability of combining Bashark with Smith.

The rejection in the Office Action uses the mere existence of a turbidity sensor in both Bashark and Smith as the motivation for combining the references. Not only is this an insufficient suggestion or motivation to combine the references, but the turbidity sensors in Bashark and Smith are inherently different and teach away from making the combination. "There is no suggestion to combine, however, if a reference teaches away from its combination with another source." *Tec Air v. Denso*, 192 F.3d, 1353, 1360 (Fed. Cir. 1999). The sensor in Bashark is built into a sump portion of the dishwasher while the Smith sensor is located in a recirculation fluid conduit connecting the sump to the upper spray mechanism. Incorporating the Smith turbidity sensor into Bashark would require a significant amount of redesign because Bashark would have to be modified to include an elaborate recirculation system with an upper spray mechanism. Thus, the mere presence of a turbidity sensor in the two references does not provide suggestion or motivation to make the combination, and the references teach away from the combination, thereby establishing no suggestion to combine.

## **(2) Prior art references do not teach or suggest all the claim limitations**

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested in the prior art. In the Office Action, it is acknowledged that Bashark "does not teach determining the degree of soiling of the rinse liquid by determining the turbidity values corresponding to the recirculation of the liquid in the lower and upper spray plane as claimed," (February 6, 2006 Office Action, page 4). This limitation is present in the sole independent claim and, therefore, all of the dependent claims of the present application. To

account for Bashark missing this claim limitation and to allegedly reach the claimed invention, the Examiner combines Bashark with Smith. The summary of the Smith disclosure in the Office Action cites the following features: (1) a turbidity sensing mechanism for a dishwasher, (2) turbidity is a measure of the suspended and/or soluble soils in the fluid, and (3) recirculation of the liquid in the upper and lower spray plane. Thereafter, it is stated that “it would have been obvious for one skilled in the art to use the lower and upper spray plane and turbidity sensing mechanism taught by Smith et al. in the Bashark process to obtain the claimed process.” (February 6, 2006 Office Action; page 4) However, this position possesses critical deficiencies because Smith does not teach or suggest the claim limitations not present in Bashark.

The Office Action does not state that Smith discloses the claimed feature that is missing from Bashark (*i.e.*, determining degree of soiling of the rinse liquid by determining the turbidity values corresponding to the recirculation of the liquid in the lower and upper spray plane) because Smith does not contain such disclosure. In the claims of the current application, separate turbidity values are determined for the upper spray plane and the lower spray plane. Nothing in Smith even suggests determining the turbidity of an upper wash plane and determining the turbidity of a lower wash plane. Even though the Smith dishwasher has upper and lower spray mechanisms and teaches, according to the Examiner, recirculation of the liquid in the upper and lower spray plane, Smith does not disclose operating the dishwasher to obtain separate turbidity values for the upper and lower wash planes. Smith refers to generally measuring the turbidity of the fluid in the sump. Although the liquid recirculates through the sump during operation of both the upper and lower spray planes, the disclosure of this structure does not correspond to a disclosure of operating the dishwasher to determine separate turbidity values for the upper and lower spray planes. As neither Bashark nor Smith disclose determining degree of soiling of the rinse liquid by determining the turbidity values corresponding to the recirculation of the liquid in the lower and upper spray plane, the obviousness rejection must fail.

Furthermore, the Examiner recognizes that a *method step* is not disclosed in Bashark and attempts to add *structural elements* from Smith to the Bashark process to reach the claimed method. Combining structure with a process, however, does not remedy the deficiencies of the process. The structural elements of the lower and upper spray planes and the turbidity sensing

mechanism taught by Smith do not provide the method step missing from Bashark. Further, the Smith structural elements do not have an associated method step that inherently brings the absent method step to the Bashark process. This further supports the position that the prior art does not teach or suggest all of the claim limitations, and it is not proper to combine Bashark with Smith in the manner suggested to establish obviousness.

Assuming, *arguendo*, that the references are combinable and the rejection meets the *prima facie* requirements, the combination would still not render the claims obvious. A combination of Bashark with Smith would result in the dishwasher operation process disclosed in Bashark executed with the upper and lower spray mechanisms and turbidity sensing mechanism of Smith, which measures the turbidity of the fluid in the sump.

Claim 24, which is the independent claim from which all of the other claims depend, calls for a method having the steps of (1) determining a degree of soiling of the rinsing liquid by determining turbidity values corresponding to the recirculation of the rinsing liquid in the lower spray plane and the upper spray plane, respectively, and (2) setting at least one operating parameter of at least one of the rinse step and the cleaning step based on the determined degree of soiling. Thus, claim 24 requires the determination of a separate turbidity value for each of the upper and lower spray planes.

The alleged combination does not include the step of determining the degree of soiling as claimed because the alleged combination does not determine turbidity values corresponding to the recirculation of the liquid in the lower spray plane and the upper spray plane, respectively. The alleged combination cannot include this claim element because, as discussed above, neither of the references used to make the alleged combination includes this claim element. In Smith, which contributes the turbidity sensing mechanism to the alleged combination, there is no discussion of determining a turbidity value for the upper spray plane separate from a turbidity value of the lower spray plane. Smith only collectively refers to the spray mechanisms (see quote from col. 3, lines 17-18) and generically describes measuring turbidity of liquid in the sump rather than turbidity values for the upper and lower spray planes. As such, the combination only teaches measuring turbidity of the liquid in the sump – not determining separate turbidity

values for upper and lower spray planes. Further, there is no teaching of determining separate turbidity values for upper and lower spray planes in Bashark. Bashark discloses only a single spray arm positioned below both of the dish racks. This configuration has only a single spray plane as the single spray arm can spray liquid in only one direction, which is upward onto the dish racks. Bashark, therefore, does not teach upper and lower spray planes, much less determining separate turbidity values for an upper spray plane and a lower spray plane. Furthermore, it would not have been obvious in view of the alleged combination to determine the degree of soiling in the claimed manner. It therefore follows that claim 24 is patentable over the alleged combination.

Claims 2, 8, 24-32, and 34-39 depend directly or indirectly from claim 24 and are likewise not obvious and are not unpatentable over the alleged combination of Bashark and Smith.

Claim 28 depends from claim 24 and further defines over the alleged combination in that it calls for the determining of the degree of soiling to comprise determining a difference value corresponding to the difference between the turbidity values. As discussed above with respect to claim 24, neither the alleged combination nor either of the references used to construct the alleged combination include determining separate turbidity values for the upper spray plane and the lower spray plane. It follows that the alleged combination does not include determining a difference between the separate turbidity values, and it would not have been obvious to do so in view of the alleged combination. Thus, claim 28 is not obvious and is not unpatentable over the alleged combination.

Claim 29 depends from claim 28 and also defines over the alleged combination. Claim 29 requires the determining of the turbidity values to correspond to the turbidity when the turbidity is no longer increasing upon the recirculation of the rinsing liquid in the lower spray plane and the upper spray plane, respectively. During operation of the alleged combination's turbidity sensor, which is the Smith turbidity sensor, "the signals from the sensor are accumulated over a predetermined period of time (measurement interval) to provide a frequency signal value or count that is representative of the turbidity of the fluid." (Col. 5, lines 3-6). There is no discussion of having the measurement interval correspond to when the turbidity is no



longer increasing. Even if the alleged combination had the Bashark turbidity sensor, the Bashark sensing element simply determines whether the fluid is turbid or not turbid. Consequently, the alleged combination does not include turbidity values that correspond to when the turbidity is no longer increasing, nor would this claim element have been obvious in view of the alleged combination. Thus, claim 29 is not obvious and is not unpatentable over the alleged combination.

Claim 30 depends from claim 29 and adds that the determining of the turbidity values comprises alternately recirculating the rinsing liquid in the lower and upper spray plane, which is not included in the alleged combination. Neither of the references for the alleged combination discloses alternately recirculating rinsing liquid in the lower and upper spray planes: Smith only refers to generically supplying water to the spray mechanisms, and Bashark only has one spray arm that sprays liquid upward. As such, the combination does not teach alternately recirculating rinsing liquid in the lower and upper spray planes. It also would not be obvious to alternately recirculate rinsing liquid in the lower and upper spray planes in view of the alleged combination. As a result, claim 30 is not obvious and is not unpatentable over the alleged combination.

Claim 31 depends from claim 30 and calls for the determining of the turbidity values to comprise alternately recirculating the rising liquid in the lower and upper spray planes until the turbidity stops increasing for both of the lower and upper spray planes. The arguments presented above for claims 29 and 30 apply to claim 31 and are not repeated for brevity. Thus, claim 31 is not obvious and is not unpatentable over the alleged combination.

Claims 32, 34, 36, and 8, which all depend directly or indirectly from claim 31, further define the inventive method by adding additional steps or expounding on already claimed steps. These claims build upon the limitations set forth in claims 28 and 29, and the arguments presented above for claims 28 and 29 apply to claims 32, 34, 36, and 8 and are not repeated for brevity. Thus, claims 32, 34, 36, and 8 are not obvious and are not patentable over the alleged combination.

New claim 40 depends directly from claim 24 and contains the same limitations of claim 30 without the intervening claims between claims 24 and 30. The discussion above for claim 30 is directed to these limitations, and the arguments are not repeated for brevity. Thus, for at least

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the same reasons presented above with respect to claim 30, claim 40 is not obvious and not unpatentable over the alleged combination.

For the reasons discussed above, all claims remaining in the application are allowable over the prior art of record. Prompt notification of allowability is respectfully requested.

If there are any remaining issues which the Examiner believes may be resolved in an interview, the Examiner is respectfully invited to contact the undersigned.

Respectfully submitted,  
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